Solutions: Examining Distributions Checkpoint 1 The following 5 questions relate to the same histogram, shown below. Question 1 Students will see one of the following two questions, chosen at random. Option 1: The histogram below displays the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week. 18 16 14 12 Frequency 10 8 6

Select one answer. 10 points

(c) 68% (d) 70% (e) 80%

Time for a Group of Rats to Navigate a Maze Frequency

What percentage of deaths were individuals younger than 35? Correct answer: (c) Option 2: This histogram shows the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze.

8

Select one answer. 10 points

2 Time in Minutes (a) 34% (b) 60% (c) 68% (d) 70% (e) 84%

What percentage of the rats navigated the maze in less than 5.5 minutes? Correct answer: (e) Question 2 Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1. Option 1: Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that were observed in a certain hospital during a week. 18 16

Select one answer.

10 points

6 4 2

10

(b) Left-skewed with no outliers

(c) Right-skewed with no outliers

(d) Left-skewed with a possible outlier

(e) Right-skewed with a possible outlier

(a) Symmetric

Correct answer: (e)

2

(a) Symmetric

(b) Left-skewed with no outliers

Option 2:

20

30

Which of the following best describes the shape of the histogram?

50

Age

70

8

80

Time for a Group of Rats to Navigate a Maze Frequency

Time in Minutes

Which of the following best describes the shape of the histogram?

in a animal behavior experiment to successfully navigate a maze.

Here again is the histogram showing the times, in minutes, required for 25 rats

Select one answer.

Select one answer.

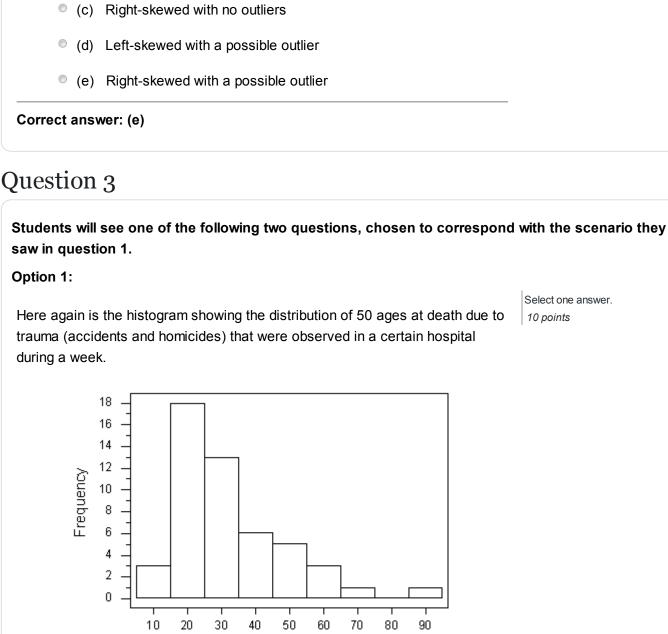
Select one answer.

10 points

10 points

Select one answer.

10 points



Here again is the histogram showing the times, in minutes, required for 25 rats 10 points in a animal behavior experiment to successfully navigate a maze. Time for a Group of Rats to Navigate a Maze Frequency 6

Time in Minutes

For the data described by the above histogram,

(e) both (a) and (d) are correct.

(a) the median will be smaller than the mean.

(b) the median will be larger than the mean.

(c) the median and the mean will be about the same.

(d) the median and the range will be about the same.

Age

For the data described by the above histogram,

(e) both (b) and (d) are correct.

Correct answer: (b)

2

Correct answer: (a)

Correct answer: (d)

Frequency

6

2

(a) 3.3

(b) 3.9

(c) 4.6

(d) 5.5

Correct answer: (b)

Question 5

saw in question 1.

during a week.

10

were wrongly recorded as 900, then:

20

30

(a) Both the mean and the median will not change.

(b) Both the mean and the median will change.

40

Assume that the largest observation in this dataset is 90. If this observation

50

Age

60

70

80

90

Option 1:

Option 2:

Question 4

Option 2:

(a) the median will be bigger than the mean.

(b) the median will be smaller than the mean.

(c) the median and the mean will be about the same.

(d) the median and the range will be about the same.

Students will see one of the following two questions, chosen to correspond with the scenario they saw in question 1. Here again is the histogram showing the distribution of 50 ages at death due to trauma (accidents and homicides) that occurred in a certain hospital during a week. 18 16 12 10 8 6 4 2 40 10 20 30 50 60 70 80 Age A possible value of the median in this example is: (a) 23 (b) 45 (c) 50 (d) 33 (e) It is impossible to answer without seeing all of the data.

Here again is the histogram showing the times, in minutes, required for 25 rats

Time for a Group of Rats to Navigate a Maze

Time in Minutes

(e) It is impossible to answer without seeing all of the data.

Here again is the histogram showing the distribution of 50 ages at death due to

trauma (accidents and homicides) that were observed in a certain hospital

Students will see one of the following two questions, chosen to correspond with the scenario they

A **possible** value of the median in this example is:

in a animal behavior experiment to successfully navigate a maze.

Select one answer.

Select one answer.

10 points

10 points

Select one answer.

10 points

(c) The mean will stay the same, but the median will change. (d) The mean will decrease, but the median won't change. (e) The mean will increase, but the median won't change. Correct answer: (e) Option 2: Here again is the histogram showing the times, in minutes, required for 25 rats in a animal behavior experiment to successfully navigate a maze. Time for a Group of Rats to Navigate a Maze Frequency 6 2 Time in Minutes Assume that the largest observation in this dataset is 8.6 minutes. If this observation were wrongly recorded as 86, then: (a) Both the mean and the median will not change.

0 points

(b) Both the mean and the median will change. (c) The mean will stay the same, but the median will change. (d) The mean will decrease, but the median won't change. (e) The mean will increase, but the median won't change.

Please answer the question below. Your response will not be graded, but will be available for your instructor to

measures will you use in each case?

What determines which numerical measures of center and spread are

appropriate for describing a given distribution of a quantitative variable? Which

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read.

Correct answer: (e)

Question 6